Met Office

NEWS

2020 set to extend series of Earth's warmest years

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The Met Office annual global temperature forecast for 2020 suggests that next year will once again extend the series of the earth's hottest years, since records began in 1850.

The series of warmest years began in 2015; the first year when global temperatures exceeded 1.0 °C above the pre-industrial period (1850-1900).

2020 projected to be another warm year

The warmest year on record was in 2016, when significant El Niño-related warming in the tropical Pacific boosted the global temperature. 2020 is projected to be another very warm year, but this time without a strong El Niño signal.

The Met Office forecasts the global average temperature for 2020 to be between 0.99 °C and 1.23 °C - with a central estimate of 1.11 °C - above the pre-industrial average period from 1850–1900. Since 1850, 2016 was the warmest year on record with a central estimate of 1.16 °C above the same baseline.

Rising levels of greenhouse gases driving the forecast

In the absence of strong El Niño-induced warming in the Pacific, rising levels of greenhouse gases are driving the 2020 temperature forecast. Professor Adam Scaife is the Met Office head of long-range prediction. He said: "Natural events – such as El Niño-induced warming in the Pacific – influence the climate system, but in the absence of El Niño, this forecast gives a clear picture of the strongest factor causing temperatures to rise: greenhouse gas emissions."

The forecast is based on the key drivers of the global climate, but it doesn't include unpredictable events, such as a large volcanic eruption, which would cause a temporary cooling. Dr Nick Dunstone, an expert in climate variability at the Met Office, said: "Although the Earth has warmed by about 1.0 °C on average since pre-industrial times, this isn't spread evenly over the surface of the globe as much of the warming is occurring in the Arctic and over land masses. This was a feature of climate change that was predicted at the time of the launch of the Met Office Hadley Centre and the publication of the first IPCC report thirty years ago."

The Met Office's forecast for the 2019 global mean temperature, issued at the end of 2018 (0.98 °C to 1.22 °C with a central estimate of 1.10 °C), agrees closely with the latest observations of global temperature so far this year. Data from Jan-Oct 2019 shows the global mean temperature is 1.11±0.10 °C above pre-industrial levels.

Forecast projects 2020 amongst six warmest years on record

Dr Doug Smith, Met Office research fellow, said: "The forecast for 2020 would place next year amongst the six warmest years on record, which would all have occurred since 2015. All of these years have been around 1.0 °C warmer than the pre-industrial period."

The global temperature series is an average of three global temperature data sets: HadCRUT; NOAAGlobalTemp; and GISTEMP.

Global temperature series from 1997

Year	Combined Series (degC)	Combined Series uncertainty
2020 forecast	1.11	0.12
2019 to the end of October	1.10	0.11
2018	0.98	0.12
2017	1.06	0.11
2016	1.16	0.09
2015	1.09	0.02
2014	0.91	0.04
2013	0.85	0.04
2012	0.81	0.04
2011	0.76	0.05
2010	0.90	0.04
2009	0.83	0.03
2008	0.72	0.02
2007	0.82	0.06
2006	0.82	0.02
2005	0.86	0.03
2004	0.75	0.04
2003	0.82	0.02
2002	0.81	0.02
2001	0.74	0.03
2000	0.60	0.03
1999	0.61	0.05
1998	0.83	0.06
1997	0.68	0.05

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